

RESPONSE TO OBJECTION TO THE DRAWINGS

Figure 1 has been amended to include a numeric label for the “snap fit connection” recited in claim 1. With respect to the “spring tab” feature, it is noted that on page 6, lines 7-8 of the specification, it is stated that “detent element 34 has a spring tab, *likewise designated by 34*, which laps paraxially over armature-shaft bearing 26 at the periphery.” (emphasis added). Since the specification clearly identifies the spring tab feature with a numeric label (34), it is respectfully submitted that the drawings adequately illustrate this feature.

RESPONSE TO THE REJECTION OF CLAIM 16 UNDER 35 U.S.C. §112, ¶1

Claim 16 has been rejected under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification so as to convey to one skilled in the art that the inventor was in possession of the claimed invention. In particular, the Examiner asserts that the phrase “inaccessible bearing seat” is not described in the specification and drawings. Applicant respectfully disagrees with this assertion and contends that the disclosure of the present invention clearly describes why and how the bearing seat can be inaccessible in a manner that would be readily understood by those skilled in the art of the claimed subject matter.

The specification repeatedly sets forth that one of the advantages provided by the present invention is that “the bearing seat does not have to be accessible for inserting the armature-shaft bearing, since the armature-shaft bearing is automatically secured axially in the bearing seat of the housing.” See e.g., Specification, page 2, lines 19-23. This feature of inaccessibility is further described on page 6, lines 23-35 as follows:

To be able to press armature-shaft bearing 26 into bearing seat 32, a spacer sleeve 38 is mounted on armature shaft 14 between commutator 28 and armature-shaft bearing 26. Thus, armature-shaft bearing 26, together with armature 12 upon whose armature shaft 14 it is mounted, is pressed into bearing seat 32 until detent element 34 snaps into place. *Therefore, bearing seat 32 does not have to be accessible in order to insert armature-shaft bearing 26.* After detent element 34 has

snapped into place on armature-shaft bearing 26, armature 12 is withdrawn axially for a short stretch, thus forming an axial clearance between spacer sleeve 38 and armature-shaft bearing 26.

(Emphasis added).

Similarly, with respect to the alternative embodiment illustrated in Fig. 3, the specification provides that:

In the altered specific embodiment of the invention shown in Figure 3, armature-shaft bearing 26, disposed between commutator 28 and worm 30, has depressions 48 at its outer surface. Material 50 of bearing seat 32 is worked into these depressions 48, e.g., using stamp 52 indicated in Figure 3 with dotted lines, and armature-shaft bearing 26 is thereby fixed axially in position in bearing seat 32. Since stamp 52 in Figure 3, as well as pressure roller 46 in Figure 2, are applied from the outside, *bearing seat 32 does not have to be accessible in order to insert and fix armature-shaft bearing 26 in position.*

(Specification, page 7, line 34 to page 8, line 7 (emphasis added)).

The above-quoted sections indicate how the present invention achieves the advantage over the related art, i.e., an installation opening in the housing is not required in order to axially secure the armature-shaft bearing in the bearing seat. See, Specification, page 1, lines 24-31. Given the clear guidance from the specification, it is respectfully submitted that those skilled in the art would readily acknowledge that Applicant was in possession of an electric motor having a housing with an inaccessible bearing seat at the time the application was filed.

Withdrawal of the rejection of claim 16 under 35 U.S.C. §112, first paragraph, is therefore respectfully requested.

RESPONSE TO THE REJECTION OF CLAIMS 7, 8 and 16 UNDER 35 U.S.C.

§102(b)

Claims 7, 8 and 16 have been rejected under 35 U.S.C. §102(b) as being anticipated by German Published Patent Application No. 4422492 to Rainer et al.

(Rainer).

Independent claim 7 recites an armature-shaft bearing situated in the bearing seat of the housing, which bearing is retained axially in the bearing seat by one of a detent and a snap-fit connection and by a portion of the bearing seat.

In the Final Office Action, the Examiner asserts that Rainer discloses (in Figure 2) an armature-shaft bearing (32) that is retained by one of a detent and a snap projection (35) and by a portion of the bearing seat. The Examiner also equates the bearing seat with an inner side of the tab used for the detent (33). Applicant respectfully submits that the inner side of the tab (33) is not equivalent to a bearing seat, and that the inner side of the tab does not axially retain the armature-shaft bearing. Therefore, Rainer does not disclose (or even suggest) each of the features of claim 7.

As illustrated in the embodiment shown in Figure 1 of the present invention, the armature-shaft bearing (26) is restrained axially, i.e., from moving up or down along the axis of the motor, by both the snap-fit connection provided by the detent element (34, 36) which prevents movement downward, and also by the bearing seat (32) which abuts the top of the armature-shaft bearing and thereby prevents its upward movement. In contrast, Rainer does not disclose this feature, and there is no corresponding bearing seat element shown that restricts the upward movement of the armature-shaft bearing, but rather there appears to be a washer between elements (32) and (16) -- a structural device that the present invention explicitly is designed to avoid. See, Specification page 1, lines 18-23.

For at least this reason, it is respectfully submitted that Rainer does not anticipate claim 7, or claim 8 which depends from claim 7.

As regards independent claim 16, it recites a housing having an inaccessible bearing seat. Since, as noted above, the armature-shaft bearing disclosed in Rainer is restrained axially by a washer element, whatever bearing seat exists in Rainer must be accessible in order to place the washer in position. Again, the Background section of the specification clearly indicates that present invention is designed to avoid use of a washer so that the armature-bearing can be fitted into housings for which the bearing seat is inaccessible. Therefore, Rainer merely discloses the related art having the problem that the present invention solves.

Accordingly, it is respectfully submitted that Rainer does not anticipate independent claim 16.

Withdrawal of the rejection of claims 7, 8, and 16 under 35 U.S.C. §102(b) is therefore respectfully requested.

RESPONSE TO THE REJECTION OF CLAIMS 12-13 UNDER 35 U.S.C. §102(b)

Claims 12 and 13 have been rejected under 35 U.S.C. §102(b) as being anticipated by United States Patent No. 5,129,740 to Matsushita et al. (Matsushita).

Independent claim 12 recites an electric motor having an armature-shaft bearing situated in the bearing seat of the housing, the armature-shaft bearing being fixed in position in the bearing seat by a tamping.

In the Final Office Action, the Examiner asserts that “a tamping” is a process for forming the device and is not germane to the issue of patentability itself, and that therefore this feature has not been given patentable weight. It is respectfully submitted that the feature of “a tamping” as used in claim 12 is clearly descriptive of a structural element and therefore should be given its patentable weight.

It is understood that apparatus claims cover what a device is, not what a device does. See MPEP §2114 (quoting Hewlett-Packard Co. v. Bausch & Lomb Inc., 909 F.2d 1464, 1469 (Fed. Cir. 1990)). Claim 12 recites that the armature-shaft bearing is “fixed in position in the bearing seat by a tamping.” Thus, while tamping refers to the process of creating a protruding section in the housing, it is also clearly understood to those skilled in the art that the bearing is fixed in place not by the tamping process itself, but by the structures that result from tamping, namely, inwardly-projecting protrusions formed by application of pressure which restrain axial movement of the armature-shaft bearing. The specification clearly indicates in Figures 2 and 3 and accompanying text the structural features associated with a tamping of the housing (the collar 44 shown in Fig. 2, and the depressions 48 shown in Figure 3). Since claim terms are given their broadest reasonable meaning as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description, see In re Morris, 127 F.3d 1048 (Fed. Cir. 1997), it is respectfully submitted that those skilled in the art would clearly understand that the phrase “fixed

in position in the bearing seat by a tamping” indicates the presence of a structural feature associated with and resulting from a tamping.

As noted in the previous amendment of May 7, 2002 responsive to the first Office Action, while Matsushita appears to depict a groove on the external side of a bearing element, it does not show a tamping that fixes the armature-bearing axially in position in the bearing seat, but rather states that “the bearing . . . has a pressed groove formed as a pressing mark on the outer circumferential surface of the bearing support.” Matsushita, col. 2, lines 64-68 (emphasis added). Furthermore, while Matsushita uses a pressed groove to reduce a radial clearance between a shaft bearing and an armature, the tamping recited in claim 12 goes further to fix the axial position of the armature, due to the fact that the armature bearing cannot move past the tamplings.

Accordingly, it is respectfully submitted that Matsushita does not anticipate claim 12 or claim 13 which depends from and further limits claim 12.

Withdrawal of the rejection of claims 12 and 13 under 35 U.S.C. §102(b) is therefore respectfully requested.

RESPONSE TO THE REJECTION OF CLAIMS 9-11 UNDER 35 U.S.C. §103(a)

Claims 9-11 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Rainer in view of United States Patent No. 5,485,044 to Mackay et al. (Mackay).

Claims 9-11 depend from independent claim 7. As discussed in the previous responsive amendment of May 7, 2002, it is respectfully submitted that Mackay does not cure the deficiencies of the Rainer reference noted above with respect to claim 7, since Mackay also fails to disclose or suggest an armature-shaft bearing being retained axially in the bearing seat by one of a detent and a snap-fit connection and by a portion of the bearing seat. As shown in Mackay Figure 2, the armature bearing 70 is not retained axially by a portion of the bearing seat; instead, there is a space directly above the bearing 70 permitting movement of the bearing toward the gear end.

As the combination of Rainer and Mackay does not teach or suggest each of the elements of independent claim 7, it also does not teach or suggest each of the

elements of claims 9-11 which depend from claim 7. Withdrawal of the rejection of these claims under 35 U.S.C. §103(a) is therefore respectfully requested.

RESPONSE TO THE REJECTION OF CLAIMS 14-15 UNDER 35 U.S.C. §103(a)

Claims 14 and 15 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Matsushita in view of Mackay.

Claims 14 and 15 depend from and incorporate the features of independent claim 12. It is respectfully submitted that Mackay does not cure the deficiencies of Matsushita noted above with respect to claim 12, since Mackay also fails to disclose or suggest an armature-shaft bearing situated in the bearing seat of the housing which is fixed in position in the bearing seat by a tamping. In fact, Mackay does not refer to or even suggest any type of inwardly-protruding structures in relation to an armature bearing element.

Since the combination of Matsushita and Mackay does not teach or suggest each of the elements of claims 14 and 15, these claims are patentable over the cited references. Withdrawal of the rejection of these claims under 35 U.S.C. §103(a) is therefore respectfully requested.

CONCLUSION

It is respectfully submitted that the foregoing amendments and remarks demonstrate that the application is in clear condition for allowance and prompt notification thereof is solicited. The Examiner is invited to contact the undersigned to discuss any matter concerning this application.

The Office is authorized to charge any fees associated with this Amendment to Kenyon & Kenyon Deposit Account No. 11-0600.

Respectfully Submitted,

KENYON & KENYON

Dated: September 20, 2002

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Version with Markings to show changes made

IN THE SPECIFICATION:

Please substitute the following paragraph for the paragraph beginning on the last line of page 5, and continuing through line 21 of page 6 of the specification:

--Armature-shaft bearing 26 mounted on armature shaft 14, together with armature shaft 14 upon which the entire armature 12 including commutator 28 is mounted, is inserted into a bearing seat 32 formed as a hollow-cylindrical section of worm housing 18. Armature-shaft bearing 26 is retained axially in bearing seat 32 by one or even a plurality of detent elements 34 distributed over the periphery. Detent element 34 has a spring tab, likewise designated by 34, which laps paraxially over armature-shaft bearing 26 at the periphery, and which has a detent projection 36 at its free end which grips armature-shaft bearing 26 from behind at an end face facing armature 12 and thereby retains it axially in bearing seat 32. When inserting armature-shaft bearing 26 into bearing seat 32, detent element 34 is pressed elastically to the side by armature-shaft bearing 26, as indicated in Figure 1 with dotted lines. After armature-shaft bearing 26 has gotten over detent projection 36 of detent element 34, detent element 34 springs back into its starting position in which detent projection 36 retains armature-shaft bearing 26 axially in bearing seat 32 in a snap-fit connection 37.--.

IN THE CLAIMS:

Please amend claim 7 as follows:

7. (Twice Amended) An electric motor comprising:
- a housing having a bearing seat;
 - an armature shaft; and
 - an armature-shaft bearing situated in the bearing seat of the housing, the armature-shaft bearing being retained axially in the bearing seat by one of a detent and a snap-fit connection and by a portion of the bearing seat[;].